

CLAIMS

5 1 – A method of modulation of a carrier, in particular an RF carrier, in which two quadrature components I and Q are generated and a local frequency is vectorially modulated with these components, wherein:

- signals I/Q are filtered around the zero frequency so as to create a small free frequency bands,
- 10 - into this small free frequency band are inserted alternately into the signal I and into the signal Q a low-frequency subcarrier sufficiently remote from zero as not to engender any shift error of the continuous component and of a sufficiently low relative level with respect to that of the signal I/Q as not to disturb the latter,
- 15 - a fraction of the vectorially modulated signal is demodulated in a synchronous manner with the same local frequency alternately cosine-wise and sine-wise,
- a low-pass filtering is carried out on the demodulation signal so as to extract the subcarrier marred by amplitude and phase errors
- 20 corresponding successively to the amplitude and phase errors with which the signals I and Q are marred after the vector modulation,
- these amplitude and phase errors are measured;
- and the initial components I and Q are feedback-corrected on the basis of these measurements so as to compensate for these errors.

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2 – The method of claim 1, wherein all the operations, with the exception of the vector modulation, of the generation of the local frequency, of the demodulation and of the low-pass filter, are performed digitally.

30 3 - The method of claim 1, wherein the generation of the local frequency is done by the addition to an RF frequency of a reference frequency F1 low enough to be generated digitally sine-wise and cosine-wise.

35 4 - A device for modulating a carrier, in particular an RF carrier, comprising:

- a digital processor for generating two quadrature components I and Q,

- a local base frequency generator,

- a vector modulator for modulating this local frequency by these
5 two components,

- means of filtering of the signals I/Q around the zero frequency,

- a generator of a low-frequency subcarrier,

- means for inserting this subcarrier alternately into the signal I and
into the signal Q,

10 - means for demodulating a fraction of the output signal from the
vector modulator with the local frequency in a synchronous manner
alternately cosine-wise and sine-wise,

- a filter for extracting the subcarrier marred by amplitude and
phase errors from the demodulated signal,

15 - means for measuring these amplitude and phase errors,

- and means for correcting the initial components I and Q on the
basis of these measurements so as to compensate for these errors.

5 – The device of claim 4, which further comprises:

20 - means for generating a complementary local frequency low
enough to be processed by the digital processor,

- means for adding this complementary local frequency to the base
local frequency,

- means for digitally phase-shifting alternately cosine-wise and
25 sine-wise the said complementary local frequency useful for demodulation,

- means for adding this local frequency thus phase-shifted to the
base local frequency so as to energize the means of synchronous
demodulation.